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Research Article

A RESEARCH STUDY ON THE OCCURRENCE OF ANTI HCV ANTIBODIES IN BLOOD DONORS

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Abstract:

Objective: The objective of this study is to evaluate the prevalence of anti-hepatitis C virus antibodies in the donors of blood.

Study Design: The study was a retroactive work conducted Blood Bank of Jinnah Hospital, Lahore. This study covered a duration of complete 1 year after the start of screening of hepatitis C virus. The analysis of the percentages of the occurrence carried out in this study.

Study Setting: The collection of the data carried out from different other hospitals, departments of the same hospital and other branches of the hospital. EIA was in use for the initial samples of the serum in our institute. A sum of 166,183 donors of 1st time or standby blood donors having the age from 18 to 60 years who gave their blood in emergency mobile sessions or in various blood banks were the part of this research work. All the donors of blood who verified non-reactive on EIA were not the part of this case study. The evaluation of the occurrence of the hepatitis C virus infections in the donors of blood.

Results: Total 4.450% blood donors primarily tested sensitive; out of these 0.360 % were not correctly on the screening conducted firstly. Advance testing with the help of EIA showed the exact occurrence of hepatitis C virus in the donors at 4.10%.

Conclusions: The service for the transfusion of the blood initiated the screening for hepatitis C virus in May 2016 and the occurrence of hepatitis C virus amongst TTIs (Transfusion Transmitted Infections) for the Punjab was very high. It was two times greater than the occurrence of HBV infection and many thousand times greater than the infection of HIV. There is a requirement of careful & total coverage of screening to tackle this terrible situation. The review of the methodology for testing is also very necessary.

Key Words: Blood, transfusion, donor, HCV, infection, HIV, HBV, measure, EIA, screening, terrible, blood banks.

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INTRODUCTION:

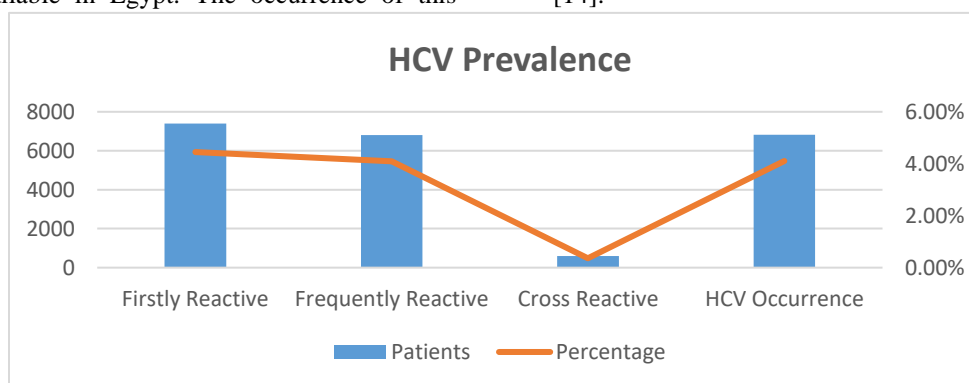
Among the main reasons of the hepatitis, there is a vital place of infection because of HCV. The discovery showed that it is the major cause of disease agent of non-A Non-B hepatitis [1]. There are a lot of research on the causes, development and transmission of the hepatitis C virus but still there are many new patients suffering from the infection of HCV [2]. The occurrence of HCV infection is very high with an estimation of about 4 million persons infected & 8-10 thousands deaths every year in USA alone [3]. Like a benign disease, it is no easy to diagnose the presence of the HCV infection. According to the survey, 70%-80% patients of HCV are anicteric & asymptomatic [4]. The disease of fulminant is not very common. The importance of the infection of HCV therefore is the cause of induction of the chronic disease of liver. Minimum 85.0% patients suffering from the infection of acute HCV develop chronic infection [5]. There is an estimation that 20% to 30% patients suffering from the chronic HCV infection may develop the disease of cirrhosis [6]. There are also available proofs for the association of the acute HCV with the hepatocellular carcinoma [7]. The liver diseases due to HCV are the major cause of the transplantation of the liver in the peoples of USA in recent times. In current times, there is no vaccination present & treatment with interferon separately from being costly is effectual is lower than 20.0% of the treated patients [8]. The infection of HCV occurs normally due to exposure to the products on polluted blood, injuries due to needle, drug abuse activities & donors suffering from any infection [9]. The high occurrence in the sex workers & patients attending the clinics of STD may provide the route of sex for the transmission of the disease [10]. Vertical & familial transmission of the disease is also under consideration but there is no strong evidence to prove this factor [11]. A research work on the children of Saudi Arabia showed an equal occurrence (1.0%) as found in the young people [12]. Different occurrences concluded from a range of 0.07% found in England to 25.0% available in Egypt. The occurrence of this

disease is very high in the countries of Africa & South Asia as compared to the countries of other continents [2]. This research work is very important to estimate the occurrence of the HCV infection in our general public for the control and management of the disease with well managed strategies.

METHODOLOGY:

The duration of this study was from May 2018 to April 2019. The testing of 166,183 donors of blood having 18 to 60 year of age carried out for the anti-hepatitis C virus antibody in our institute. The analysis of the information carried out in our institute for the occurrence of the infection of HCV among healthy blood donors. Most of the donors were donating blood for the very first time, there were very few donors who were giving blood repeatedly. Our collected information shows the incidence of this infection in general population as well as in this age group. SPIAs (Solid Phase Immuno-assay) testing carried out on all the samples of blood for the identification of the HCV presence [13].

All the firstly samples of serum which were reactive, came under retesting with the utilization of the EIA (Enzyme Immunoassays) provided by the HDG (Human Diagnostics Germany). The kits of Enzyme Immunoassays diagnose antibodies of IgG or IgM to a quantity of various viruses. The use of the non-competitive enzyme Immunoassays was very common. In this procedure, antigen of virus adhered in a solid stage normally on the plates of microwell & used to hold the unbound antibodies specific to virus. The free antibody of serum washed away prior the accumulation of enzyme marked antibody of antihuman detector. After this the addition of the alkaline phosphatase complied. The concentration of the produced color is comparative to the quantity of the antibody in the sample which is viral specific. Spectrophotometer used for the measurement of the results and comparison with the controls carried out [14].



RESULTS:

The screening of 166,183 donors carried in a period of complete 1 year, 4.450% (n: 7398) tested firstly reactive on fast test engaging immune-chromatography. Resting of the results carried out with the application of EIA, we found 6797 donors

tested frequently reactive. We found .36% (n: 601) of blood donors who were reactive, they were either found as cross reactive or incorrectly positive In the EIA. The exact occurrence of the HCV was available as 4.10%.

Table 1: Donors' Blood Screening Results for HCV Prevalence

Response	Patients	Percentage
Firstly Reactive	7398	4.45%
Frequently Reactive	6797	4.09%
Cross Reactive	601	0.36%
HCV Occurrence	6814	4.10%
Total Donors	166,183	

DISCUSSION:

We diagnosed the high occurrence of the hepatitis C virus in transfusion transmitted infections in the screening of the donors (4.10%). Which is very close to double amount of the HBV occurrence of 2.20% and thousand times greater than the occurrence of HIV (0.001%). The occurrence of the infection of HCV is very high in Punjab as compared to the other areas of the country. The occurrence of HCV among donors is 0.150% in Zimbabwe [15], 0.40% in Malaysia [16] & 0.90% in Argentina [17]. The incidence of the HCV infection in the donors represent the prevalence of the hepatitis C infection in the general population of Punjab, Pakistan. Most of the donors of this case study were the first time donors or the replacement donors. There is a need of the detection of the high occurrence of the hepatitis C virus in our societies to control the wide-spreading infection due to HCV.

There are some preventive measures which should keep a check on disposable waste, the use of the used syringes by unprincipled staff, education of the dangers in the workers of the health field, the sharing of the needle by the drug addicted persons, use of the used blades by the barbers, not sterilized apparatus used by the dentists, staff of labor ward, the staff executing circumcisions particularly in the non-urban areas, the practices of hemodialysis, and sexual transmission. The amount of the blood donors who were not truly positive were only 0.360% which is not much as it was in the initially report [18]. The research works have described regardless the factors of specificity, vaccination to influenza has donated to such unverified reactivity [19]. Due to the not exact positivity, we should not compromise the safety of the blood because with the passage of the time the supply of the blood may decrease due to the dropout of the donors.

CONCLUSIONS:

The occurrence of the hepatitis C infection in the donors was high (4.10%). The findings of the case study show the occurrence of the hepatitis C virus infection in the normal population of the country. A study is the need for the identification of the reasons for the prevailing infections of hepatitis C virus. There is need for the review off the screening methods for the diagnosis of the infections of HCV.

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